

13 Oct 2019: Comprehensive News Analysis

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A. GS1 Related

Category: CULTURE AND HISTORY

1. Nehru Memorial Museum and Library (NMML)

Introduction

- NMML established in the memory of Jawaharlal Nehru is an **autonomous institution under the Ministry of Culture**
- It is **Located in the majestic Teen Murti House**
- It aims to foster academic research on modern and contemporary history

Context

- Design for PMs' museum likely to be finalised in Nov.

- The proposed museum will be located at Teen Murti Estate, the former residence of late Prime Minister Jawaharlal Nehru that houses the NMML today, and will include exhibits on all Prime Ministers of India.

Is it right to turn NMML into a museum for PMs?

Yes

- The Nehru Memorial Museum and Library (NMML) is **focused more on India's freedom struggle than Nehru's life.**
- The NMML is famous globally because its library, reprography and manuscript sections **house the best collection of journals, books, photos and personal papers of individuals and institutions.** It is invaluable to researchers on modern and contemporary Indian history.
- The NMML and Teen Murti **house the library and other related units,** all established after Nehru's death.
- A substantial portion of the Teen Murti Estate has been **diverted to other public uses**
- Teen Murti was selected in 1948 as the residence of the PM, not of Nehru.
- So the claim that introducing other PMs, and making provision for future ones, would detract from Nehru's legacy does not stand scrutiny, and does not do justice to Nehru himself.

No

- It was built with an explicit aim of honoring India's first Prime Minister and the national movement. So any idea of bringing in other PM's will **belittle the legacy of India's most impactful Prime Minister Nehru and his journey for India's Independence**
- Lal Bahadur Shastri was offered the opportunity to move into Teen Murti Bhavan, which was where Nehru lived throughout his prime ministerial years, he declined as a mark of respect, and set in motion the process of converting it into a memorial to Nehru.

It's complicated

- It is a vibrant research institution. A large number of fellowships were offered to young and senior scholars to work on a various social science themes.
- The NMML became perhaps the **best repository of research documents on the British period of India's history,** consisting of government records, newspapers, private collections of important individuals and papers of political parties.
- The **museum tells the story of the freedom struggle** through a display of documents since the late 19th century till 1950.
- Therefore, any symbolism notwithstanding, substantively NMML is not about Nehru. All the four components — library, archive, research centre and the museum — have their own dynamism and relevance, which go far beyond any individual. All the four components need to grow.

B. GS 2 Related

Category:INTERNATIONAL RELATIONS

1. Summit will usher in 'new era' in India-China ties, says Modi

Context

- After the second India-China “informal summit”, Prime Minister Narendra Modi said this would usher in “a new era” in ties that had seen “increased stability and fresh momentum” after the first summit between him and President Xi Jinping in Wuhan

Details

- The first informal summit between India and China in Wuhan led to fresh stability in relations between the two countries. It gave a fresh momentum and strategic communication between the two countries
- Modi referring to the Wuhan summit said, “We had decided that we would prudently manage our differences and not let them become disputes, be sensitive to each other’s concerns, and be a reason for peace and stability in the world.”
- During talks, India and China agreed to set up a high-level economic and trade dialogue mechanism. It would include Finance Minister Nirmala Sitharaman and China’s Vice-Premier Hu Chunhua

Xi moots 100-year plan to cement ties with India

- President Xi said we should have a plan for next 100 Years from a strategic and long-term perspective, inject impetus into the development of China-India relations, and work together to realise the great rejuvenation of the two great civilizations of China and India
- The Chinese President stressed that “military security exchanges and cooperation” between the two countries must be “earnestly” improved.
 - This will be promoted by development of relations between the two militaries along the correct direction of increasing trust and dispelling doubts and friendly cooperation, and carry out activities such as professional cooperation and joint training, continuously enhance mutual trust between the two militaries, strengthen cooperation between law enforcement and security departments, and maintain regional security and stability
- Xi also advocated the relevance of gradually expanding the “China-India plus” cooperation to South Asia, Southeast Asia and Africa.
 - The China-India plus initiative, first proposed at the Wuhan informal summit, is a mechanism of prior consultation to manage overlapping interests of India and China in Asia, Africa and the Indian Ocean
- Xi also called for “fair and reasonable” solution to the “boundary problem” that is acceptable to both parties based on “Political Guiding Principles Agreement” agreed to by the two countries in 2005.

C. GS 3 Related

Category:ENVIRONMENT

1. Sikkim sees surge in butterfly biodiversity

Context

- From the iconic Kaiser-i-Hind to the recently rediscovered Small Woodbrown butterfly, the state of Sikkim is home to nearly 700 species of butterfly.

Details

- There were issues raised in the past that organic farming could affect butterfly diversity in the state
- A new study has found that the indigenous farming systems in this area are not affecting butterfly diversity. In fact, the team from Sikkim University found that organic farming has increased the species diversity.
- This study has helped break the stereotype that agriculture declines the wild biodiversity.

But some steps needs to be taken to protect the biodiversity

- The agroecosystems need special protection in order to protect the wild biodiversity as there is no scope of extension of protected areas in lower elevation.
- Two, a synergy between agriculture, horticulture, forest and rural management department along with all stakeholders including farmers is required.
- Three, farmers should be encouraged and incentivised to maintain the diversity of the farmlands.
- Finally, more than monoculture systems, the focus should be on growing a variety of crops in a traditionally way and mixed crop farms to better conserve biodiversity.

Way Forward

- As the Himalayan biodiversity has recently been facing threats from habitat loss, change in land use, forest fragmentation and urbanisation, it is high time the neighbouring states take notes from Sikkim and shift to traditional organic methods to preserve the biodiversity of the region.

Category:S&T AND ENVIRONMENT

1. GM cottonseeds approved as food by U.S. regulators

Context

- U.S. regulators gave the green light for genetically modified cotton to be used for human consumption, paving the way for a protein-packed new food source — edible cottonseed that tastes a bit like chickpeas

Details

- It was developed by Texas A&M University scientists
- Ordinary cottonseed is unfit for humans and many animals to eat because **it contains high levels of gossypol, a toxic chemical.**
 - But the research team has used RNAi, or RNA interference, technology to “silence” a gene, **virtually eliminating gossypol** from the cottonseed.
 - Gossypol was left at natural levels in the rest of the plant because it **guards against insects and disease.**
- It can be eaten as food for people and all types of animals.

Significance

- The genetic modification does not affect the plant’s fiber for use in textiles
- It could help tackle global malnutrition.

D. GS 4 Related

Nothing here for today!!!

E. Editorials

Category:SCIENCE AND TECHNOLOGY

1. What are exoplanets, and what is 'dark' matter?

Introduction

To read: [Click Here](#)

What are exoplanets? Since when have people been looking for them?

- The word planet is a general term that describes **any celestial body that moves around a star**. Well, there are also “rogue” planets that do not orbit stars. An exoplanet is a planet outside our solar system. It is an extrasolar planet.
- **Nicolaus Copernicus** was the first to put the Sun at the centre, with planets like earth moving around it. This was literally an earth-shaking theory, because before that, people imagined the earth to be at the centre of the universe.
- The Copernican revolution was followed by the **Italian philosopher Giordano Bruno** in the sixteenth century and later Sir Isaac Newton shattering the uniqueness of the Sun's position by predicting that many stars could have planets orbiting them.

Why did it take so long for exoplanets to be discovered?

- 51 Pegasi b was the first exoplanet to be discovered by Mayor and Queloz in December, 1995.
- The delay was due to the **lack of good telescopes or a suitable method**.
- Indirect methods that used slight wobbling in the orbits of binary stars or variations in the brightness of isolated stars – none yielded correct results and was rejected by the astronomy community.

What kind of a planet is 51 Pegasi b? Is it habitable?

- The constellation Pegasus has a star 51 Pegasi which is some 50 light years away from earth. On October 6, 1995, the prize-winning duo discovered a planet orbiting it.
- It was named 51 Pegasi b, as per astronomical conventions. It is a gas giant, about half the size of Jupiter, which is why it was given the name Dimidium, meaning one-half. It orbits its star in just four days. It is unlikely that we can survive that.

How many such exoplanets have been discovered? Who maintains a list of exoplanets?

- According to the **NASA exoplanet archive**, as of October 10, 2019, there are 4,073 confirmed exoplanets. This webpage hosts one of the archives that has such lists and data.
- Today, there are not just ground-based telescopes but **space missions that search for exoplanets, such as the Kepler Space Telescope**.

Why did James Peebles get the Prize?

- In the beginning was the **Big Bang**, about 13.8 billion years ago. No one knows much about the earliest states of the universe, but theories hold that it was a compact, hot and opaque particle soup.
- About 400,000 years after the Big Bang, the universe expanded and cooled to a few thousand degrees Celsius. This caused it to **become transparent, allowing light to pass through it**. This ancient afterglow of the Big Bang, the remnants of which still can be observed, is known as the **Cosmic Microwave Background (CMB)**.
 - The universe continued to expand and cool and its present temperature is close to 2 kelvin. That is, approximately minus 271 degrees Celsius.
 - **Microwaves have wavelengths in the range of millimetres** which has been long compared to visible light. The CMB consists of light in the microwave range because the expansion of the universe stretched the light so much. Microwave radiation is invisible light.
 - The CMB was detected first in 1964, winning for its discoverers a Nobel Prize in 1978.
- **Peebles realised that measuring the CMB's temperature could provide information about how much matter had been created in the Big Bang.**
 - He also saw that the release of this light played a role in **how matter could form clumps creating what we now see as galaxies**. This was a major breakthrough.
 - This discovery by Peebles heralded a new era of cosmology.
 - Many questions — how old is the universe? What is its fate? How much matter and energy does it contain? These could be answered by studying the variation of the CMB.

What is Peebles' role in understanding dark matter? For that matter, what is 'dark' matter?

- By measuring the speeds of rotating galaxies, scientists were able to see that a lot of mass needed to be there that would hold the galaxies together with the strength of their gravitational attraction. Before Peebles intervened, the missing mass was attributed to neutrinos.
- Peebles instead said this is due to a hitherto unknown type of “dark” matter particles. However, while they could “see” a portion of this mass, a large part of it could not be seen. Hence the mass missing from view was named “dark” matter

What is dark energy?

- In 1998, it was discovered that the universe is expanding and that this expansion was gaining speed or accelerating.
- There had to be an “invisible” energy that was driving this. Calculations showed that this dark energy – so called because it did not interact with the observed mass – makes up about 70% of the universe.

2. How oxygen levels affect cell metabolism?

Context

- The Nobel Prize for Physiology or Medicine was awarded to three scientists, William G. Kaelin Jr. from Howard Hughes Medical Institute, Maryland, U.S., Sir Peter J. Ratcliffe from Francis Crick Institute, London, and Gregg L. Semenza from the Johns Hopkins Institute for Cell Engineering for their **discovery of how cells sense and adapt to oxygen availability**.
- The three scientists have uncovered the genetic mechanisms that allow cells to respond to varying levels of oxygen.

Why is it important?

- Oxygen is used by all cells to **convert food to useful energy**.

- While oxygen is essential for the survival of cells, excess or too little oxygen can lead to adverse health consequences.
- Oxygen supply temporarily reduces in muscles during intense exercise and under such conditions the cells **adapt their metabolism to low oxygen levels**. Proper growth of the foetus and placenta depends on the ability of the cells to sense oxygen.
- Drugs have already been developed to treat Anaemia by making the body produce increased number of red blood cells.
- Similarly, drugs to **increase oxygen availability in people with heart disease** and lung cancer are being tested.
 - Many diseases can be treated by increasing the function of a particular pathway of the oxygen-sensing machinery.
- At the same time, inhibiting or blocking the pathway will have implications in treating cancer, heart attack, stroke and pulmonary hypertension.
- **Cancers are known to hijack the oxygen-regulation machinery** to stimulate blood vessel formation and also re-programme the metabolism in order to adapt to **low oxygen conditions**.
 - The reprogramming of metabolism gives cancer cells the plasticity to shift from a state where they have limited potential to cause cancer to a state when they have greater potential for long-term growth.
 - Efforts are under way to develop drugs that can block the oxygen-sensing machinery of cancer cells to kill them.

What do we already know?

- The rate at which we **respire depends on the amount of oxygen being carried in the blood**.
- Specialised cells present next to large blood vessels in the neck sense the blood oxygen level and alert the brain to increase the rate of respiration when the oxygen level in the blood goes down.
- At the beginning of the last century, scientists knew that specialised cells present in the **kidneys make and release a hormone called erythropoietin**.
 - When oxygen level is low, as in high altitudes, more of this hormone is produced and released, leading to increased production of red blood cells in the bone marrow — helping the body adapt to high altitudes.
 - Besides increasing red blood cells, the body also grows new blood vessels to increase blood supply.

What are the main contributions of 2019's winners?

- Both Prof. Semenza and Sir Ratcliffe independently studied how the erythropoietin gene is regulated by varying oxygen levels.
- Both researchers found that the oxygen-sensing mechanism is not restricted to kidneys where the erythropoietin is produced **but by diverse cells in tissues other than the kidney**.
- **Semenza** identified a **pair of genes that express two proteins**.
 - When the oxygen level is low, one of the proteins (**HIF-1alpha**) turns on certain genes, including the erythropoietin gene, to increase the production of erythropoietin.
 - The hormone, in turn, increases the oxygen availability by boosting the production of red blood cells.
- **Kaelin Jr.**, who was studying an inherited syndrome called von Hippel-Lindau's disease (VHL disease) found that people had increased risk of cancer when they inherited VHL mutations.
 - He found the VHL gene seemed to be involved in how cells respond to oxygen.

Function of the HIF-1alpha protein

- The function of the HIF-1alpha protein, which turns on the genes to produce more erythropoietin, is blocked and is rapidly degraded when the oxygen level is normal but remains intact when oxygen level is low.
- Sir Ratcliffe found that VHL interacts with the HIF-1alpha protein and degrades it when the oxygen level is normal.
- This ensures that excess red blood cells are not produced when the oxygen level is normal.

Why do athletes use erythropoietin? What are the risks?

- Athletes have been found to use erythropoietin, synthetic oxygen carriers and blood transfusions for blood doping. Each of the three substances or methods is banned by the World Anti-Doping Agency (WADA).
- While the use of erythropoietin in people who are anaemic due to chronic kidney disease helps in increasing the oxygen level in the blood, the **use of the hormone by normal, healthy people can lead to serious health risks.**
- In the case of healthy people who have a normal red blood cell count, the use of external erythropoietin is highly **likely to make the blood thick (increase viscosity) leading to an increased risk of heart disease**, stroke, and cerebral or pulmonary embolism (clot that blocks the flow of blood).

3. Towards a rechargeable world

To read about the topic: [Click Here](#)

F. Tidbits

Nothing here for today!!!

G. Prelims Facts

1. Teen Murti Bhawan

- The Teen Murti Bhawan used to be the **residence of the first Prime Minister of India, Jawaharlal Nehru**, who stayed here for 16 years until his death in 1964.
- It **was designed by Robert Tor Russell**, the British architect of Connaught Place and of the Eastern and Western Courts on Janpath during the British Raj
- Teen Murti houses various institutions including the **Nehru Memorial Museum and Library (NMML)**, which runs under the Indian Ministry of Culture
- The complex also houses the offices of the '**Jawaharlal Nehru Memorial Fund**', established in 1964 under the Chairmanship of Dr S. Radhakrishnan, then President of India.
- Also contained within the complex are the '**Centre for Contemporary Studies**' and the **Nehru Planetarium** which opened in 1984.

"Teen Murti" (Three statues)

- The memorial comprises life-size statues of three soldiers, and was built in 1922 in the memory of the Indian soldiers from three Indian princely states, namely; **Jodhpur State, Hyderabad State and Mysore State**
- In 1918, Indian soldiers fought the World War I alongside British forces.
- The British were in war with the then Ottoman Empire, who controlled a large part of West Asia. Haifa was part of the Turkish Empire.
- The memorial was built in memory of soldiers, officers and men of the 15th imperial service cavalry brigade, composed of cavalry regiments from Indian states, who lost their lives in the great war of 1914 - 1919 in Sinai, Palestine and Syria.

2. SAFAR

To read about the topic: [Click here](#)

Context

- Air quality poor, may worsen in coming weeks. Monitoring agency SAFAR warns about effect of stubble burning on air quality.

3. Eravikulam National Park

- It is a national park located along the Western Ghats in the Idukki district of Kerala
- It is the first national park in Kerala.
- The terrain consists of high altitude grasslands interspersed with sholas.
 - **Anamudi**, 2,695 meters, the highest peak in India south of the Himalayas is inside this park.
- Many perennial streams criss-cross the park. They merge to form tributaries of the Periyar river in the west and of the Cauvery River in the east.
- **Lakkom Water falls** is in this region.

4. PM Modi goes plogging on Mamallapuram beach

Context

- Prime Minister Narendra Modi, who was in Mamallapuram for his informal summit with Chinese President Xi Jinping, was seen picking up plastic litter and other waste during his morning walk at a beach

What does Plogging mean and where did it originate?

- Plogging is a combination of two words: jogging and Swedish phrase for pick up, 'plocka upp'.
- Started in Sweden by Erik Ahlström in 2016, plogging is an eco-friendly exercise through which people pick up trash while jogging or brisk walking as a way to clean up litter and also take care of their health.

Impact of Plogging

- Ever since the movement took shape in Sweden, it has spread globally
- Since then, the movement has been adopted and implemented across the world by fitness and environmental enthusiasts.
- Over the last few years, several groups have popped up across Europe, US, South America, Asia and Africa that galvanise communities to take affirmative action against plastic pollution through a positive intervention like plogging.
- The fact that plogging addresses both the health and environment aspects make people feel they are positive agents of change and that anyone can do it.

5. Quilombo

- Quilombo, also called mocambo, in colonial Brazil, a community organized by fugitive slaves/ escaped slaves during the Portuguese colonialism
- A quilombo is typically a small community of Afro-Brazilians who have had historically limited contact with urban centers, thereby keeping their heritage as close to its African roots as possible
- Vão de Almas (Space of Souls) is the most isolated quilombo of the Kalunga community
- These quilombos, spread across the country, are now run by the descendants of former slaves, often with support from the government.

Context

- There was an agreement signed between Brazil and the U.S. recently
- It allowed the Americans to use the **Alcântara missile launch site** in the state of Maranhão, threatens to expel hundreds of quilombolas
- There are fears that more than 800 families would be robbed of their land and pushed into poverty.

H. UPSC Prelims Practice Questions

Q1. Dharma Guardian is a joint military exercise between India and

- a) China
- b) Japan
- c) South Korea
- d) Thailand

Answer: b

Explanation:

Q2. Consider the following about Burkina Faso

1. It is a country on the western coast of Africa opening to Atlantic
2. Burkina Faso is a francophone country, with French as the official language of government and business.

Which of the given statement/s is/are correct?

- a) 1 only
- b) 2 only
- c) Both
- d) None

Answer: b

Explanation:

- It is a landlocked country in West Africa.
- Mali to the north; Niger to the east; Benin to the southeast; Togo and Ghana to the south; and Ivory Coast to the southwest.



Context

- 16 killed in Burkina Faso mosque attack

Q3. Consider the following about Jaldoot:

1. It is a unique initiative to spread the message of water conservation to masses
2. It is initiated by Uttar Pradesh Govt to Protect Ganga

Which of the given statement/s is/are incorrect?

- a) 1 only
- b) 2 only
- c) Both
- d) None

Answer: b

Explanation:

- Jaldoot is a travelling exhibition arranged by Regional Outreach Bureau, Pune under the Ministry of Information and Broadcasting
- It is a unique initiative to spread the message of water conservation to masses.
- The exhibition highlights bold initiatives and decisive actions taken by the government.

Q4. With reference to Palaly Airport

1. It is present on south eastern part of Srilanka
2. It will help in expanding connectivity between Srilanka and Southern part of India

Which of the given statement/s is/are correct?

- a) 1 only
- b) 2 only
- c) Both
- d) None

Answer: b

Explanation:



I. UPSC Mains Practice Questions

1. Explain in detail how the Lithium Batteries set off a technology revolution? Also comment on the Issues and Challenges Facing Rechargeable Lithium Batteries. (15 Marks, 250 Words)
2. What is an 'informal' summit, as opposed to a normal summit? Do they provide answers to questions baffling the countries? Critically Analyze. (15 Marks, 250 Words)